Fig. 7. Same from the interior or the side next the rhachis.
Fig. 8. Flowering glume, with its palea, etc., removed from the outer glumes.
Fig. 8a. The short rhachilla which is prolonged behind the palea.
Fig. 9. The palea, dorsal view.
Fig. 10. The fruit, to which is attached by adnation a stamen, the anther of which is seen above.

Revision of North American Hypericaceæ.—II.

JOHN M. COULTER.

* * * Styles 3 or 4, very long, distinct and spreading, stigmas capitate: capsule ovate, strictly one-celled, a line or two long; seeds minutely striate and pitted: simple or branching herbs, 1 to 3 feet high, with small distant ascending sessile or clasping leaves, and the uppermost branches of the cyme bearing alternate distant flowers.

17. **H. virgatum** LAM. Leaves ovate or oblong-lanceolate, acute, half to an inch long, 2 to 4 lines wide: flowers bright yellow, 4 to 8 lines in diameter, in nearly naked cymes: sepals lanceolate to ovate, acute or acuminate, keeled below, more or less foliaceous and enclosing the small capsule.—Dict. iv. 158; Chois. in DC. Prodr. i. 547; Torr. & Gray, Fl. i. 166.

H. angulosum Michx. Willd. Spec. iii. 1453; Chois. l. c. 546; Torr. & Gray, l. c. 164 and 673; Gray, Manual, 85.

H. hedyotifolium Poir. Suppl. vii. 700.

Wet pine barrens of New Jersey, to Florida and Kentucky.

This species is exceedingly variable in the size of its leaves, but this is a characteristic of the whole genus, and has led to much confusion in attempting to construct species upon leaf characters. The broader-leaved, more northern forms are to be referred to the species, while associated with it at the south is

Var. **acutifolium.** Usually taller and more branching: leaves linear-lanceolate, tapering to a very acute apex, an inch or more long, a line or two wide.

H. acutifolium Ell. ii. 26; Torr. & Gray, Fl. i. 167.

18. **H. pilosum** WALTER. Scabrous tomentose, mostly simple: leaves ovate-lanceolate, usually appressed, 4 to 6 lines long, about a line or two wide, sometimes much reduced: flowers 3 to 5 lines in diamater, in few-flowered cymes: sepals ovate-lanceolate, acute: petals more than twice as long, involute when old.—Fl. Car. 190; Chois. l. c. 549; Torr. & Gray, Fl. i. 163.

H. setosum L. as to Clayton's plant in Gronov. Virg. 88.
H. simplex Michx. Fl. ii. 80; Chois. l. c.
Ascyrum villosum L. Spec. 788.
Wet pine barrens, South Carolina, to Florida and Louisiana.

**** Styles 3, long, distinct and usually spreading; stigmas capitate: capsule ovate, 3-celled, more or less glandular and exhaling a heavy odor when crushed; seeds as in the last: whole plant (including petals and anthers) more or less black dotted: herbs, with rather large leaves and flowers, the petals much longer than the sepals.

† Eastern species: plants 1 to 4 feet high: capsules mostly not lobed.

19. **H. PERFORATUM** L. Much branched: leaves linear to oblong, obtuse, mostly tapering at base, half to an inch long, 1 to 5 lines wide: flowers numerous in loose cymes, about an inch in diameter: sepals linear-lanceolate, very acute or acuminate: petals bright yellow, black dotted along the margin: capsule conical-ovate, 2 or 3 lines long.

Common everywhere in old fields as a weed difficult to extirpate. (Nat. from Europe.)

20. **H. maculatum** WALTER. Simple below, more or less branched above, conspicuously dotted all over: leaves oblong to lance-ovate, obtuse or acute, more or less clasping, sometimes tapering at base, 1 to 3 inches long, 4 to 9 lines wide: flowers smaller, 3 to 6 lines in diameter, crowded: sepals lanceolate to ovate, acute: petals pale yellow, with black lines as well as dots: capsule conical-ovate, 2 or 3 lines long.—Fl. Car. 189; Michx. Fl. ii. 80; Torr. & Gray, Fl. i. 161 and 673.

H. Virginicum Walter, 189.

H. punctatum Lam. Dict. iv. 164: Chois. in DC. Prodr. i. 547; Reich. Hort. Bot. i. 61, t. 88.

H. corymbosum Muhl. Willd. Spec. iii. 1457; Torr. & Gray, l. c. 160; Gray, Manual, 85.

H. micranthum Chois. Prodr. Hyper. 44, t. 5; Hook. Fl. Bor.-Am. i. 109.

From Canada and Minnesota to Florida and Texas.

This species is quite variable in the length of its styles, and upon the characters of short and long styles H. corymbosum and H. maculatum were formerly separated. This distinction, however, does not hold, as although the northern forms are mostly shorter styled the same forms are also found at the south associated with the longer styled forms. Besides it is only in extreme cases that the styles are very different in length, and there is every gradation between. The long styled forms of the south represent this species as formerly defined, which must now be made to include also H. corymbosum. The southern plants also usually have more glandular capsules.

21. **H. graveolens** BUCKLEY. Simple, or somewhat branched above: leaves large, elliptical-oblong, obtuse, closely sessile or clasping, 2 or 3 inches long, about an inch wide: flowers an inch or more in diameter, in few-flowered cymes: sepals lanceolate,

very acute: petals very scantily black dotted, if at all: capsule somewhat lobed, ovate, 3 to 5 lines long.—Am. Jour. Sci. I. xlv. 174; Gray, Genera Ill. i. 214, t. 92, Manual, 85; Chapm. Fl. 41.

Mountains of North Carolina.

†† Western species: plants 3 inches to 2 feet high: capsules 3-lobed, 3 or 4 lines long: petals bright yellow, often tinged with purple, with a few black dots along the margin.

22. **H. formosum** HBK. var. **Scouleri.** From running root-stocks, simple or somewhat branching, often with numerous small branchlets, a half to two feet high: leaves ovate-oblong, obtuse, more or less clasping, about an inch long, half inch or more wide (those of the branchlets much smaller and often tapering at base), usually black dotted along the margin of the under surface, veiny: flowers half to an inch in diameter, in loose corymbs: sepals lanceolate to ovate, obtuse or acute: styles mostly erect.

H. Scouleri Hook. Fl. Bor.-Am. i. 111; Torr. & Gray, Fl. i. 160; and of all authors.

Throughout all our western mountain systems, and extending into British Columbia.

Exceedingly variable. The species is Mexican, and differs from our variety only in its narrower and acuminate sepals. It is really questionable whether our forms deserve to rank even as a variety, as there are found among them sepals which are almost indistinguishable from those of H. formosum.

23. **H. concinnum** BENTH. Somewhat shrubby and branching at base, 3 to 18 inches high: leaves linear to oblong, not clasping, usually folded, half to over an inch long, 1 to 4 lines wide, acute: flowers over an inch in diameter, few, in rather close clusters at the summit of the stem, with black lines as well as dots: sepals ovate, mucronate-acute, or very acuminate, longer than the capsule.—Pl. Hartw. 300; Brewer & Watson, Bot. Calif. i. 81.

H. bracteatum Kellogg, Proc. Calif. Acad. i. 65.

California. First collected by *Hartweg*, in the "Sacramento Valley."

§3. Stamens 5 to 20, mostly in 3 clusters: styles 3 (sometimes 2), short, distinct; stigmas capitate: capsules ovate to conical, one-celled; seeds yellow, more or less striate and pitted: small and slender annuals, with very small flowers, and petals shorter than the sepals.

* Procumbent or ascending, or forming dense mats, diffusely branching: leaves rather broad, obtuse, clasping: capsule a line or two long.

24. **H. anagalloides** Cham. & Schlecht. Often forming dense mats: stems an inch to a foot long: leaves oblong to broadly ovate, very obtuse, 5 to 7-nerved at base, 2 to 6 lines long, almost as broad: flowers 3 or 4 lines in diameter, in few-flowered naked or leafy cymes: sepals foliaceous, unequal, lanceolate to broadly ovate, longer than the ovate capsules: stamens 15 to 20.—Linnæa, iii. 127; Torr. & Gray, Fl. i. 167 and 674.

? *H. mutilum* Watson, King's Report, v. 46.

In wet ground from Southern California to Washington Territory, Montana (*Watson*), and British Columbia. Also in adjacent Mexico.

Possibly this is but a form of *H. Japonicum* Thunb.

25. **H. mutilum** L. Like the last, but more erect and diffusely branching, a half to a foot (or even two feet) high: leaves narrowly oblong to somewhat ovate, half to an inch long, 2 to 4 lines wide, 5-nerved at base: flowers in very loose leafy cymes: sepals linear to lanceolate, usually shorter than the ovate capsule: stamens 6 to 12 —Spec. 787; Torr. & Gray, Fl. i. 164.

H. quinquenervium Walter, Fl. Car. 190; Chois. in DC. Prodr. i. 550; Hook. Fl. Bor.-Am. i. 110.

H. parviflorum Willd. Spec. iii. 1456; Pursh. 377.

H. stellarioides HBK. Nov. Gen. v. 196.

Low grounds, from Canada to Florida and Texas. Also in adjacent Mexico.

Quite variable in size, and in some forms closely resembling the last species.

** Almost simple, with strict stems and branches: flowers in naked cymes: sepals linear to linear-lanceolate, acuminate.

26. **H. gymnanthum** Engelm. & Gray. A foot to three feet high: leaves cordate-ovate, clasping, often quite distant, half inch or more long, 5 to 7-nerved and 3 to 5 lines wide at base, tapering to an acute or obtuse apex: flowers in strict mostly few-flowered elongated cymes: sepals a line or two long, about as long as the ovate-conic capsule: stamens 10 to 12.—Pl. Lindh. 4; Walp. Ann. ii. 188.

H. mutilum var. *gymnanthum* Gray, Manual, 86.

Delaware, Pennsylvania and Illinois, to Louisiana and Texas.

The strict habit and naked cymes resemble the following species. In the *Berichte der Deutschen Botanischen Gesellschaft* for Feb. 1885, R. v. Uechtritz and P. Ascherson refer this species to *H. Japonicum* Thunb. They well establish it as a species distinct from H. mutilum, but an examination of many specimens of H. Japonicum shows it to be very distinct from that species also. If H.

Japonicum is represented in our flora at all, it is our western H. anagalloides. This last named species approaches very nearly our eastern H. mutilum, to which species H. gymnanthum has been referred. This is the closest relationship we can trace between H. Japonicum and H. gymnanthum. If these two are one, then must H. mutilum and H. anagalloides follow, and with such a limitation our species of Hypericum could be reduced to very few.

27. **H. Canadense** L. A half to a foot or more high: leaves linear to linear lanceolate, glandular dotted beneath, mostly tapering to the sessile 3-nerved base, half to an inch or more long, a line or two wide: flowers in loose cymes: stamens 5 to 10: capsule very acutely conical, 2 or 3 lines long, longer or shorter than the sepals.—Spec. 785; Torr. Fl. N. Y. 1. 89; Torr. & Gray, Fl. i. 165.

H. thesiifolium, *pauciflorum* and *Moranense* HBK. Nov. Gen. & Spec. v. 192 and 193.

Wet sandy soil, from Canada to Georgia, Illinois, Wisconsin, and the Winnipeg valley.

Exceedingly variable in size. The extreme forms may be grouped under the following varieties:

Var. **major** Gray. Stems much stouter and taller: leaves larger, an inch or two long, 4 to 6 lines wide, lanceolate, more or less clasping, often very acute: flowers in larger more crowded cymes: sepals long pointed: capsules larger.—Manual, 86.

From Canada to Pennsylvania, Illinois, and about the Great Lakes.

Var. **minimum** Chois. Dwarf, 1 to 3 inches high, simple, few-flowered: leaves oblong, obtuse, 4 to 5 lines long, a line or two wide, smaller and more crowded below.—DC. Prodr. i. 550; Hook. Fl. Bor.-Am. i. 110.

On wet rocks, Canada, to Wisconsin (*Lapham*), and "Cypress Hills," N. W. T. (*Macoun*).

* * * Bushy branching, with rigid erect black-dotted stems and branches: leaves very slender and rigid or minute, erect or appressed: flowers scattered along the upper part of leafy branches.

28. **H. Drummondii** Torr & Gray. Stem and alternate branches rather stout, 10 to 30 inches high: leaves linear-subulate, erect, a fourth to an inch long, one-nerved: flowers pedicellate: stamens 10 to 20: capsule ovate, about 2 lines long, not longer than the sepals; seeds large, oval, strongly ribbed and transversely lacunose, brownish yellow.—Fl. i. 165.

Sarothra Drummondii Grev. & Hook. Bot. Misc. iii. 236, t. 107.

In dry soil, Georgia and Florida, to Illinois and Texas.

29. **H. nudicaule** WALTER. Stem and opposite branches foliform, wiry, appearing naked from the very minute awl-shaped appressed leaves, 4 to 20 inches high: flowers very small, mostly sessile: stamens 5 to 10: capsule very acutely conical, 1 to 3 lines long, much longer than the sepals; seeds very much smaller, oblong, minutely striate and pitted, light yellow.—Fl. Car. 190.

H. setosum L. Spec. 787, as to Pluck. syn.

H. Sarothra Michx. Fl. ii. 79; Torr. & Gray, Fl. i. 165; Gray, Gen. Ill. i. 214, t. 93, f. 1–7, Manual, 86.

Sarothra gentianoides L. Spec. 272; Lam. Ill. t. 215, f. 1.

S. hypericoides Nutt. Gen. i. 204; Barton, Fl. N. Am. iii. 59, t. 92, f. 1.

Dry sandy soil, Canada to Florida, and the Mississippi valley.

3. ELODEA JUSS., PURSH.

Perennial herbs, in marshes or shallow water; with small close clusters of flesh-colored flowers in the axils of the leaves and at the summit of the stem; sepals much shorter than the acute capsules.—Juss. Gen. 255, partly; Pursh. Fl. 360; Torr. & Gray, Fl. i. 167; Gray, Gen. Ill. i. 216, t. 94. Not *Elodes* Adans., Spach, nor *Elodea* Michx. *Triadenium* Raf.—A genus of two species, peculiar to Eastern North America.

1. **E. campanulata** PURSH. A foot or two high, mostly simple: leaves oblong to ovate, very obtuse or emarginate, clasping by a broad base, about an inch and a half long, half inch wide, glaucous beneath and black dotted: axillary flower clusters at the ends of elongated branches: sepals lanceolate to ovate: fllaments united below the middle: capsule 4 or 5 lines long.—Fl. 379.

E. Virginica Nutt. Gen. ii. 17; Torr. & Gray, Fl. i. 167; Gray, Gen. Ill. i 216, t. 94; Manual, 86.

Hypericum Virginicum L. Spec. 2 ed. 1104; Chois. in DC. Prodr. i. 546.

H. campanulatum Walter, Fl. Car. 191.

H. emarginatum Lam. Dict. iv. 154.

From Hudson's Bay to New Jersey and North Carolina, westward to Minnesota and the Winnipeg valley. Also in adjacent Asia and Japan.

2. **E. petiolata** PURSH. Resembling the last, but usually taller and more branching: leaves longer (2 to 5 inches), half to an inch wide, tapering to a sessile base or petioled, not so glaucous or black dotted beneath: axillary flower clusters almost

sessile: filaments united about to the middle.—Fl. 379; Torr. & Gray, Fl. i. 168.

E. tubulosa Pursh (*Hypericum tubulosum* Walter) has not been identified, but is probably this species, from which it differs only in its "tubular corolla," concerning which there must have been some mistake; see Torr. & Gray, Fl. i. 168.

Hypericum petiolatum Walter, Fl. Car. 191.
H. axillare Michx. Fl. ii. 81.
H. paludosum Chois. in DC. Prodr. i. 546.
From Virginia to Florida, Louisiana, and Arkansas.

A Trip to Willoughby Lake, Vt.

WALTER DEANE.

The region about Willoughby Lake, Vt., is so rich in interesting flowering plants and ferns that a short account of my visit there, during the latter half of July, 1885, may be of interest to botanists.

I arrived there with my wife and Judge J. R. Churchill, of Dorchester, Mass., an enthusiastic botanist, on the evening of July 18th. A pleasant ride of about eight hours in the cars from Boston, on the Boston & Montreal Air Line, brought us to West Burke, on the Passumpsic railroad, where we left the cars and took stage for the Willoughby Lake House. The ride of six miles, through a hilly country, over a rough road, was quite refreshing, for the air was clear and bracing, and, during our stay of two weeks, we were never oppressed by the heat.

Willoughby Lake lies in the northern part of Vermont, in the township of Westmore, between Willoughby mountain on the east, and Mt. Hor on the west.

The lake, which runs north and south, is six miles long and from half a mile to a mile and a half broad. Its surface is about 1200 feet above sea level. It empties into Lake Memphramagog through Willoughby river, and from there finds its way into the St. Lawrence river. The Willoughby Lake House, at which we stayed, stands at the head of the lake and commands a magnificent view, especially when the sunset clothes the towering cliffs on Willoughby Mt. with a rosy hue. The country is well wooded, even to the summit of the mountains, with the usual trees and shrubs that prevail in this section. Prominent among them were Tilia Americana, Acer saccharinum, Acer rubrum, Acer Pennsylvanicum, Acer spicatum, Fraxinus Americana, Frax-